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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/711,240

09/03/2004

Mark Daniel Gorman

129661

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30952 7590 03/26/2008  
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EXAMINER

FLETCHER III, WILLIAM P

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

03/26/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/711,240	<b>Applicant(s)</b> GORMAN ET AL.	
	<b>Examiner</b> William P. Fletcher III	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. No IDS has been filed to date in this application.

### ***Drawings***

2. The drawings were received on September 3, 2004. These drawings are acceptable.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. **Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0150901 A1.**

- A. Claim 1

i. This reference teaches a process in which the additive layer and at least a portion of the diffusion zone of the diffusion coating on an external surface of an article is removed; an overlay coating is deposited on the exposed surface region; and SRZ is inhibited thereby. See [0024] - [0037].

ii. This reference does not expressly teach that the substrate, in this case a turbine airfoil, has a diffusion coating on both the interior and exterior surfaces thereof.

iii. It is the Examiner's position that airfoils having such a coating arrangement are well known in the art and would have been readily obvious to one skilled in the art as an expedient for providing the airfoil to be treated.

B. Claim 2 It is the Examiner's position that the simultaneous diffusion claimed is the conventional means of preparing the above-mentioned airfoil.

C. Claim 3 US '901 teaches diffusion aluminide coating. See [0024], for example.

D. Claim 4 US '901 teaches removing substantially all of the diffusion zone. See [0026], for example.

E. Claim 5 US '901 teaches includes intermetallic phases. See [0031], for example.

**6. Claims 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0150901 A1, as applied to claims 1 and 5 above, further in view of US 6,153,313 A.**

A. US '901 does not expressly teach the limitation of these claims.

B. US '313 teaches that beta-NiAl coatings having 30-60% Al are known and advantageously applied in the art as overlay coatings. These coatings exhibit spallation resistance, creep resistance, and improved fracture-resistant properties. See 3:10 ff., for example. Consequently, it would have been obvious to one skilled in the art to modify the process of US '901 so as to apply, as the overlay, the beta-NiAl overlay of US '313, in order to achieve these beneficial properties.

C. Further, the claimed YSZ ceramic and further additional TBC layers are taught by US '313 and it would have been obvious to apply these in order to provide a complete multi-layer TBC ready for service. See Examples.

**7. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0150901 A1, as applied to claim 1 above, further in view of US 5,482,789 A.**

A. While US '901 does not expressly teach the claimed superalloys, it does not limit the invention to any one particular alloy. Consequently, one skilled in the art would have looked to the prior art for an example of suitable alloys.

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B. US '789 teaches the MX4 superalloy of claims 12 and 13. As such, it would have been obvious to utilize this known superalloy motivated by the desire and expectation of successfully providing a superalloy for the turbine airfoil.

**8. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0150901 A1, as applied to claim 1 above, further in view of US 5,455,120 A.**

A. While US '901 does not expressly teach the claimed superalloys, it does not limit the invention to any one particular alloy. Consequently, one skilled in the art would have looked to the prior art for an example of suitable alloys.

B. US '120 teaches the N6 superalloy of claims 12 and 14. As such, it would have been obvious to utilize this known superalloy motivated by the desire and expectation of successfully providing a superalloy for the turbine airfoil.

**9. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0150901 A1 in view of US 6,153,313 A and US 5,482,789 A or US 5,455,120 A.**

A. US '901 is applied as set forth above.

B. The claimed superalloy would have been obvious in view of US '789 or US '120, as set forth in connection with claims 12-14 above.

C. The claimed beta-NiAl overlay, YSZ, and TBC layers would have been obvious as set forth in connection with claims 6-11 above.

***Conclusion***

10. The prompt development of clear issues in the prosecution history requires that applicant's reply to this Office action be fully responsive (MPEP § 714.02). When filing an amendment, applicant should specifically point out the support for any amendment made to the disclosure, including new or amended claims (MPEP §§ 714.02 & 2163). A fully responsive reply to this Office action, if it includes new or amended claims, must therefore include an explicit citation (i.e., page number and line number) of that/those portion(s) of the original disclosure which applicant contends support(s) the new or amended limitation(s).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Sunday, 5:00 AM - 12:00 PM and Monday through Friday, 5:00 AM - 3:30 PM; on campus every Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/William Phillip Fletcher III/**  
Primary Examiner

March 19, 2008